

Claims

[c1] 1. A rear impact absorption system for a motor vehicle, said system comprising:

a rear body assembly including at least one longitudinally extending rear rail including first and second portions having first and second respective heights relative to a generally horizontal plane, said first height being greater than said second height; and

a neutralizing member operatively connectable to said rear rail to bridge said first and second heights of said rear rail so as to minimize the effect of a moment arm created by said first and second heights during a rear impact.

[c2] 2. A system according to Claim 1, said neutralizing member comprising:

first and second sections each including a pair of laterally extending flanges disposed generally orthogonal to said respective first and second sections, each of said flanges facing an inner surface of said neutralizing member, said first section being connected to said second section and being disposed generally orthogonal to said second section at said connection so as to provide a

predetermined distribution of impact energy during a rear impact.

[c3] 3. A system according to Claim 1, said neutralizing member comprising:
first and second sections each including a pair of laterally extending flanges disposed generally transverse to said respective first and second sections, each of said flanges facing an inner surface of said neutralizing member, said first section being connected to said second section and being disposed generally transverse to said second section at said connection so as to provide a predetermined distribution of impact energy during a rear impact.

[c4] 4. A system according to Claim 3, said second section including a curved convex member generally centrally disposed along a longitudinal first length of said second section and a curved concave channel generally centrally disposed along a longitudinal second length of said second section, said combined first and second lengths being less than a total length of said second section, said convex member and said concave channel providing a predetermined distribution of impact energy during a rear impact.

[c5] 5. A system according to Claim 4, said curved convex

member merging with said curved concave channel.

- [c6] 6. A system according to Claim 1, said second section including a pair of additional laterally disposed flanges for facilitating alignment of said neutralizing member relative to said rear rail.
- [c7] 7. A system according to Claim 1, said neutralizing member being made of at least one of aluminum and steel.
- [c8] 8. A neutralizing member operatively connectable to a rear body assembly of a motor vehicle so as to minimize the effect of a moment arm created by first and second heights of respective first and second portions of a rear rail during a rear impact, said neutralizing member comprising:
first and second sections each including a pair of laterally extending flanges disposed generally transverse to said respective first and second sections, each of said flanges facing an inner surface of said neutralizing member, said first section being connected to said second section and being disposed generally transverse to said second section at said connection so as to provide a predetermined distribution of impact energy during a rear impact.

- [c9] 9. A neutralizing member according to Claim 8, said first section being disposed generally orthogonal to said second section at said connection and said laterally extending flanges being disposed generally orthogonal to said respective first and second sections.
- [c10] 10. A neutralizing member according to Claim 8, said second section including a curved convex member generally centrally disposed along a longitudinal first length of said second section and a curved concave channel generally centrally disposed along a longitudinal second length of said second section, said combined first and second lengths being less than a total length of said second section, said convex member and said concave channel providing a predetermined distribution of impact energy during a rear impact.
- [c11] 11. A neutralizing member according to Claim 10, said curved convex member merging with said curved concave channel.
- [c12] 12. A neutralizing member according to Claim 8, said second section including a pair of additional laterally disposed flanges for facilitating alignment of said neutralizing member relative to said rear rail.
- [c13] 13. A neutralizing member according to Claim 8, said

neutralizing member being made of at least one of aluminum and steel.

[c14] 14. A method for minimizing the effect of a moment arm created by first and second heights of first and second portions of a rear rail during a rear impact on a motor vehicle, said method comprising the steps of:

providing a neutralizing member connectable to the rear rail to bridge the first and second heights of the rear rail, said neutralizing member including first and second sections each including a pair of laterally extending flanges disposed generally transverse to said respective first and second sections, each of said flanges facing an inner surface of said neutralizing member, said first section being connected to said second section and being disposed generally transverse to said second section at said connection so as to provide a predetermined distribution of impact energy during a rear impact; and installing said neutralizing member into the rear rail.

[c15] 15. A method according to Claim 14, further comprising the steps of:

providing said first section generally orthogonal relative to said second section at said connection; and providing said laterally extending flanges generally orthogonal relative to said respective first and second sections.

- [c16] 16. A method according to Claim 14, further comprising the steps of:
providing a curved convex member generally centrally along a longitudinal first length of said second section;
and
providing a curved concave channel generally centrally along a longitudinal second length of said second section,
wherein said combined first and second lengths being less than a total length of said second section, said convex member and said concave channel providing a predetermined distribution of impact energy during a rear impact.
- [c17] 17. A method according to Claim 16, said curved convex member merging with said curved concave channel.
- [c18] 18. A method according to Claim 14, further comprising the step of:
providing a pair of additional laterally disposed flanges on said second section for facilitating alignment of said neutralizing member relative to the rear rail.
- [c19] 19. A method according to Claim 14, said neutralizing member being made of at least one of aluminum and steel.

